

IN THE CLAIMS:

This Listing of Claims will replace all prior versions, and listings, of claims in the subject Patent Application:

Listing of Claims:

1. (Currently amended) A temperature detector circuit for generating an output when a target temperature is reached, the temperature detector circuit comprising:

a first current source for generating a first PTAT current which is a first reference current at a reference temperature; and

a second current source connected in series to the first current source through a node and supplied with a temperature-independent reference voltage for generating a second current proportional to the reference voltage, which is a second reference current at the reference temperature;

wherein the first and second current sources are configured such that a ratio of the second reference current to the first reference current is proportional to a ratio of the target temperature to the reference temperature; and,

an output stage connected to the node for producing the output,

wherein the output stage includes:

a MOS transistor having a gate connected to the node, a drain connected to a current path, and a source connected to a low voltage;
a capacitor connected between the node and source; and
a buffer connected to the drain for providing the output.

2. (Original) The temperature detector circuit of claim 1, wherein the first current source includes a current generator for generating a second PTAT current to derive the first PTAT current.

3. (Original) The temperature detector circuit of claim 2, wherein the first current source further includes a current mirror for mirroring the second PTAT current to produce the first PTAT current.

4. (Original) The temperature detector circuit of claim 1, wherein the second current source includes a transconductive amplifier for transforming the reference voltage to a third current to derive the second current.

5. (Original) The temperature detector circuit of claim 4, wherein the second current source further includes a current mirror for mirroring the third current to produce the second current.

6. (Currently amended) The temperature detector circuit of claim 1, wherein the first current source includes a first resistor for determining the first PTAT current, the second current source includes a second resistor for determining the second current, and the first and second resistors have a ratio at the reference temperature proportional to the ratio of the target temperature to the reference temperature.

7. (Original) The temperature detector circuit of claim 6, wherein the first and second resistors have a substantially same thermal coefficient.

8. (Original) The temperature detector circuit of claim 6, wherein the first and second resistors are made of a substantially same material.

9. (Original) The temperature detector circuit of claim 1, wherein the reference temperature is room temperature.

10. (Canceled).

11. (Canceled).

12. (Currently amended) A method for generating an output when a target temperature is reached, the method comprising the steps of:

connecting a first and second current sources in series through a node;
connecting a gate of a MOS transistor to the node, a drain to a current
path, and a source to a low voltage;
connecting a capacitor between the node and source;
connecting a buffer to the drain for providing the output;
generating a first PTAT current by the first current source;
supplying a temperature-independent reference voltage to the second
current source for generating a second current proportional to the
reference voltage;
selecting a reference temperature for the first and second current to be
a first and second reference currents, respectively, at the reference
temperature and with a ratio of the second reference current to the
first reference current proportional to a ratio of the target
temperature to the reference temperature; and
generating the output when the target temperature is reached.

13. (Original) The method of claim 12, further comprising the steps
of:

generating a second PTAT current by a current generator; and

deriving the first PTAT current from the second PTAT current.

14. (Original) The method of claim 13, further comprising mirroring the second PTAT current for generating the first PTAT current.

15. (Original) The method of claim 12, further comprising the steps of:

transforming the reference voltage to a third current by a transconductive amplifier; and
deriving the second current from the third current.

16. (Original) The method of claim 15, further comprising mirroring the third current for generating the second current.

17. (Currently amended) The method of claim 12, further comprising the steps of:

selecting a first resistor for determining the first PTAT current; and
selecting a second resistor for determining the second current;
wherein the first and second resistors have a ratio at the reference temperature proportional to the ratio of the target temperature to the reference temperature.

18. (Original) The method of claim 17, wherein the first and second resistors are selected to have a substantially same thermal coefficient.

19. (Original) The method of claim 17, wherein the first and second resistors are selected to be made of a substantially same material.

20. (Original) The method of claim 12, further comprising selecting the reference temperature to be room temperature.

21. (Original) The method of claim 12, further comprising connecting an output stage to the node for producing the output.

22. (Canceled).